

# PATENT ABSTRACTS OF JAPAN

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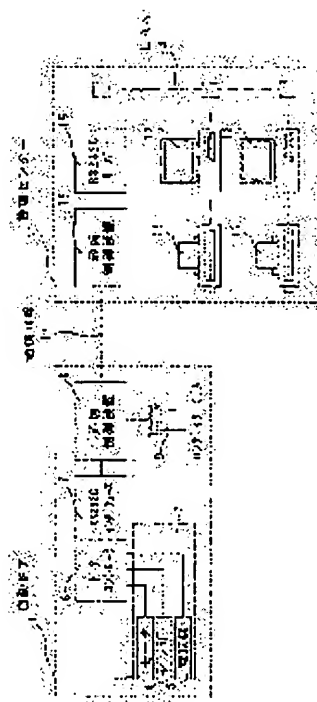
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## (54) CONTROL DEVICE FOR AUTOMATIC OPENING AND CLOSING DOOR USING COMMUNICATION LINE

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To decrease the unnecessary dispatch of engineers at the time of inspection, maintenance and failures for an automatic opening and closing door, and to previously grasp a status in the case of a failure.

**SOLUTION:** In the automatic opening and closing door for performing control for opening and closing and various settings by a door controller using a computer, the door controller is connected to a computer of a management center through a communication line, various information pieces on the automatic door can be transmitted to the management center, various settings and control of the automatic door can be performed by a remote operation from the management center, and a control program of the door controller can be rewritten.



## LEGAL STATUS

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CLAIMS

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[Claim(s)]

[Claim 1]

In the automatic closing motion door which performs closing motion control and various kinds of setup by the door controller using a computer Said door controller is connected to the computer of the management pin center, large of a remote place through a communication line. Management equipment of the automatic closing motion door using the communication line characterized by making the control program of a door controller rewritable while making various kinds of information on an automatic closing motion door into ready-for-sending ability to the management pin center, large and enabling various kinds of setup and control of an automatic door by remote operation from a management pin center, large.

[Claim 2]

The information transmitted to the computer of a management pin center, large from a door controller The hysteresis information about actuation of doors, such as a count of closing motion of a door, a count of a catch return, and a door stroke, The setting information about the closing motion rate of a door, catch return sensibility, the selfish direction of door closing motion, a special specification, etc., The current status information about the location of a door, operating state (under a switching action and a halt), a locking condition, etc., Error information, such as a count of generating according to category of error, and a door location at the time of error generating, While consisting of sensor information about the sensibility of various sensors, sensing area, a detection error, etc. and judging the need for check, maintenance, or failure correction based on such information In failure, it is management equipment of the automatic closing motion door using the communication line according to claim 1 characterized by judging the situation of failure.

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention]

The gate and the wing gate of an automatic closing motion type which were installed in the automatic door with which this invention was installed in that of the entrance of a building or the room, and the entrance of a site, In the automatic closing motion door which control is performed using a computer, drives other shutters, apertures, etc. of an automatic closing motion type by a motor etc., and is opened and closed automatically It is related with the management equipment of the automatic closing motion door which can make various kinds of information on an automatic door acquirable from a remote place using communication lines, such as the telephone line, and can perform various kinds of setup and operating commands from a remote place for failure or the check of a failure.

[0002]

[Description of the Prior Art]

the former -- check of an automatic closing motion door, maintenance, etc. -- being periodical (every [ for example, ] three months) -- the engineer was dispatched to the installation site with the report from a customer each time at the times, such as failure, and they had gone.

[0003]

[Problem(s) to be Solved by the Invention]

If checked in the installation site and have grasped the situation, when it is check and maintenance conventionally, the necessity of maintenance was judged, the situation of failure needs to be grasped in an installation site when it is failure, and an engineer was not dispatched to an installation site even when it was any, there was a trouble that nothing started.

For example, there are few counts of closing motion, and also in a situation which does not dare have the need for check and maintenance, in order to check it, an engineer must be dispatched to an installation site. Moreover, for example, if it directs by telephone etc., even if failure will be the trifling failure which cannot be called and it will be a case so that an amateur can also remove, in order to grasp the situation of a failure, an engineer must be dispatched to an installation site.

[0004]

Furthermore, since a failure situation must be grasped in an installation site even if it is the case of the failure to which an engineer has to fix, the tool and components corresponding to all failure situations must be brought. Depending on the case, repair is impossible with components on hand, and repair may not be completed by one dispatch.

Furthermore, even when it turned out beforehand that it is failure resulting from damage, a bug, etc. of the control program of a computer, and is the failure which will be restored if software is restored or replaced, there was a trouble that an engineer had to be dispatched to an installation site.

[0005]

Since an engineer must be dispatched even if it is a case, although it is not necessary to be dispatch, if such a situation of an automatic closing motion door is grasped beforehand The number of inventories

of a repair part will increase so much, and always bringing components required for it, since it corresponds to all failures with about [ that so excessive dispatch costs etc. are needed ] and possibility had the trouble of pushing up the cost of maintenance and a management service.

[0006]

This invention aims at decreasing unnecessary dispatch of an engineer in the installation site of an automatic closing motion door by grasping the condition and failure of an automatic door, and failure through a communication line.

[0007]

[Means for Solving the Problem]

In the automatic closing motion door which performs closing motion control and various kinds of setup by the door controller which was made in order that this invention might solve the above technical problems, and used the computer Said door controller is connected to the computer of the management pin center, large of a remote place through a communication line. While making various kinds of information on an automatic closing motion door into ready-for-sending ability to a management pin center, large and enabling various kinds of setup and control of an automatic closing motion door by remote operation from a management pin center, large, the control program of a door controller is made rewritable.

[0008]

[Embodiment of the Invention]

The 1st example of the management equipment of the automatic closing motion door using the communication line by this invention is explained based on drawing 1.

1 is an automatic door and this automatic door 1 serves as the body 2 of an automatic door which consists of a door (not shown), a motor 3 for a drive, various sensors 4, an electric lock 5, etc. from the door controller 6 by the computer. The door controller 6 is connected to the communication controller 8 possessing memory and a modem function through RS-232C interface 7. The connector which connects to this CCE 8 the handy terminal 9 which performs a setup and actuation of the various kinds which control panels (not shown) with which a customer usually sometimes operates an automatic door 1, such as turning on and off of a power source and a switch of an electric lock, are prepared, and an engineer mainly mentions later in the installation site of an automatic door 1 is prepared. Although a handy terminal 9 may manufacture the thing of dedication, you may make it use commercial PAD (Personal Digital Assistants). Moreover, the wired system which used the connector as mentioned above may be used for the communication link between CCE 8 and a handy terminal 9, the radio system which used FM electric wave etc. may be used for it, and the communication link through a cellular phone is sufficient as it. Although illustration is not carried out, the floodlighting sensor which detects the existence of people and a body in the neutral zone of approach sensors, such as an abnormality sensor by the load sensor to the door for approach sensors, such as a body, and a catch return, the position sensor of a door, the rotation position sensor of a motor 3, the overcurrent of a motor 3, etc., a touch sensor at the tip of a door, and said body, is contained in said various sensors 4.

[0009]

On the other hand, 11 is the management pin center, large installed in the remote place, the computers 12 and 12 which receive and analyze the data from the automatic door 1 installed in the site are installed in the management pin center, large 11, and the printer 13 for data printing is connected to the computer 12. The computer 12 is connected to the communication controller 16 through LAN14 and the RS232C server 15.

The communication controller 8 by the side of said automatic door 1 and the communication controller 16 by the side of the management pin center, large 11 are connected through the communication lines 17, such as the general telephone line and a dedicated line.

[0010]

In the above configurations, said door controller 6 is memorized in the memory in which the following door information on the body 2 of an automatic door acquired with the fixed time interval was prepared inside. There is the following information among the door information.

\*\*1 Hysteresis information about actuation of doors, such as a count of closing motion of a door, a count of a catch return, and a door stroke.

\*\*2 Setting information about the sensibility of the closing motion rate of a door, catch return sensibility, the selfish direction of door closing motion, and each sensor, sensing area, a special specification, etc.

\*\*3 Current information about the location of a current door, operating state (under a switching action and a halt), a locking condition, etc.

\*\*4 Error information, such as a count of generating according to category of error, and a door location at the time of error generating.

[0011]

Although various kinds of information memorized by the door controller 6 is transmitted to a communication controller 8 timely, the information is immediately transmitted to a communication controller 8 in emergency, such as door failure.

Moreover, the door controller 6 changes a setup of a door or a sensor, or controls the body 2 of an automatic door by the setting command from a communication controller 8 according to operating commands, such as open [ of a door ], close, a halt, locking, and unlocking.

[0012]

Said communication controller 8 accumulates various kinds of information transmitted from the door controller 6 in memory with acquisition time, and transmits the accumulated information to the management pin center, large 11 or a handy terminal 9 according to the demand from the management pin center, large 11 or a handy terminal 9. Moreover, according to the demand from the management pin center, large 11 or a handy terminal 9, CCE 8 receives transmission for the current information on the body 2 of an automatic door from the door controller 6, and transmits the current information to the management pin center, large 11 or a handy terminal 9. The information transmitted to emergency, such as door failure, from the door controller 6 is immediately transmitted to the management pin center, large 11 or a handy terminal 9. Moreover, said setting modification command and operating command which have been transmitted from the management pin center, large 11 or the handy terminal 9 are transmitted to the door controller 6.

[0013]

Said handy terminal acquires door information via a communication controller 8, and it displays it while it memorizes it. Moreover, it transmits to the door controller 6 via a communication controller 8 by considering the setting information on a door and the setting information on a sensor that it was inputted from the input panel as a setting modification command. Furthermore, operating commands, such as open [ of the door inputted from the input panel ], close, and a halt, are transmitted to the door controller 6 via a communication controller 8.

[0014]

Periodically or irregularly, from a communication controller 8, it acquires various kinds of information on an automatic door 1, and the computer 12 of said management pin center, large 11 checks the situation of a door of operation, takes into consideration the hysteresis of said check, maintenance, or failure correction, and judges the necessity of check and maintenance while it memorizes hysteresis, such as check of the automatic door 1 installed in the site, maintenance, and failure correction. The necessity of this check and maintenance is judged by the count of closing motion of the hysteresis of the check till then and maintenance, and a door etc. Moreover, if needed, a computer 12 can transmit the operating command of open [ of a door ], close, a halt, locking, and unlocking to a communication controller 8 through a communication line, can operate the body 2 of an automatic door by remote control, can acquire the positional information of a working door immediately, and can express the situation of a door of operation as animation on a display. In emergency, such as door failure, the information transmitted from the door controller 6 is received, customer information, door information, and the required information on other are displayed on a display, and information required in order to dispatch the engineer to an installation site quickly is printed by the printer.

[0015]

Below, a concrete example is given and explained. First, fixed transmission of the data of an automatic door is explained.

Various kinds of data of the door controller 6 are remembered to have mentioned above by CCE 8. These data are transmitted to a computer 12 by demand periodical (every [ for example, ] month) from the computer 12 of the management pin center, large 11 from a communication controller 8. A computer 12 judges [ error information, such as a count of generating according to the hysteresis information about actuation of doors, such as a count of closing motion of a door, a count of a catch return, and a door stroke, and category of error, and a door location at the time of error generating, and ] further whether it is necessary to be check and maintenance with reference to the hysteresis information on the check till then and maintenance, and displays those information on a display about a thing with the need.

And an engineer is dispatched to an installation site with reference to such information in consideration of the components for which exchange etc. may be needed.

[0016]

Below, the case where failure occurs on the body 2 of an automatic door is explained.

If failure occurs on the body 2 of an automatic door, the door controller 6 will judge whether they are abnormalities for it from the detection value of the various sensors 4, such information will be transmitted to a communication controller 8, and a communication controller 8 will transmit information to the computer 12 of the management pin center, large 11 as failure information with the information accumulated. The computer 12 which received such information is immediately displayed on a display as failure information. An engineer gets cooperation (for example, approach prohibition measure to the automatic door concerned etc.) of a customer, transmits an operating command to the body 2 of an automatic door, and tries remote operation while he judges the situation of failure and notifies the customer of an installation site if needed based on the information displayed on the display of a computer 12.

[0017]

The operating command inputted from the computer 12 is sent to the RS232C server 15 through LAN14, and remote operation is further transmitted to the communication controller 8 by the side of an automatic door 1 through a communication line 17 from a communication controller 16. And a communication controller 8 transmits an operating command to the door controller 6 through RS-232C interface 7, and the door controller 6 controls the body 2 of an automatic door according to an operating command.

From the door controller 6, the current information about the location and operating state of a door current in the result of remote operation is transmitted to a computer 12 through the RS232c interface 7, CCE 8, a communication line 17, CCE 16, the RS232C server 15, and LAN, and a computer 12 analyzes such current information, and animates and displays a motion of a door on a display.

[0018]

Consequently, when drive networks, such as a motor 3, are not concerned possible [ actuation ] normally, but a big load is applied to a door and a door does not operate, it suspects that something is caught in a door and it has been a failure, and a customer is asked about whether such a failure has arisen. When a customer is able to discover a failure and is able to remove a failure by his hand, an automatic door 1 is restored and it becomes unnecessary to dispatch an engineer to an installation site. Moreover, in a customer, even if cannot discover a failure or it can discover it, when it cannot remove, an engineer is dispatched to an installation site. Also when [ which is failure to be fixed as a result of analyzing the transmitted information ] judged, an engineer is dispatched to an installation site. The tool of the dedication which may be needed for the components for which it may break down and exchange may be needed, or repair etc. is brought, and it dispatches to an installation site.

[0019]

The above example shows an example in case one set of an automatic door is installed in an installation site. When two or more sets of automatic doors are installed in the site, as shown in drawing 2, the door controller 6 of two or more automatic doors is connected to one set of a communication controller 8. In

this case, a transceiver 18 is formed between CCE 8 and the door controller 6, and a handy terminal 8 is connected to this transceiver 18. And the ID code for discernment is assigned to this transceiver 18, and the door controller 6 is identified with this ID code.

It is the same as that of other configurations, therefore the example of drawing 1 .

[0020]

Although memory is prepared in the communication controller 8 by the side of an automatic door and the information on an automatic door was memorized in the above example, this invention is not restricted to this, prepares and memorizes memory in the door controller 6, and it may be made to carry out direct continuation to the handy terminal 9 door controller 6.

Moreover, although the class of communication line was not specified, it may be made to connect the management pin center, large 11 with an automatic door 1 using a general analog telephone line and a general digital channel, and the circuit of dedication is installed and you may make it connect in the above example. Moreover, you may make it connect via the Internet. Furthermore, the communication line of a cable is sufficient and the communication line of wireless is sufficient.

[0021]

[Effect of the Invention]

As mentioned above, since this invention transmits the situation of an automatic closing motion door to a management pin center, large using a communication line, it becomes possible [ grasping decision whether check and maintenance are required, a failure, and extent of failure, even if it does not dispatch an engineer to the installation site of an automatic closing motion door ], and has the effectiveness that dispatch of an engineer in an installation site is reducible. Moreover, it has the effectiveness that restoration and exchange of software can be performed through a communication line also damage on the software of the door controller 6, and in the case of a bug, without dispatching an engineer to an installation site. Furthermore, before dispatch, even if dispatch of an engineer is repair of required failure, since things can be carried out, the need for which a locating fault, a failure situation, etc. are narrowed down to some extent of bringing an unnecessary repair part and an unnecessary tool to an installation site decreases, and the number reduction of inventories of repair parts can also be carried out.

[Brief Description of the Drawings]

[Drawing 1] It is the conceptual diagram in which showing the 1st example of the management equipment of the automatic closing motion door using the communication line by this invention, and showing an example in case there is a set of an automatic door in an installation site.

[Drawing 2] It is the conceptual diagram in which showing the 2nd example of the management equipment of the automatic closing motion door using the communication line by this invention, and showing an example in case two or more automatic doors are in an installation site.

[Description of Notations]

1 [ -- An electric lock, 6 / -- A door controller, 7 / -- An RS-232C interface, 8 / -- The CCE, 9 / -- A handy terminal, 11 / -- A management pin center, large, 12 / -- A computer, 13 / -- A printer, 14 / -- LAN, 15 / -- A RS232C server, 16 / -- The CCE, 17 communication lines, 18 / -- Transceiver. ] -- An automatic door, the body of 2 -- automatic door, 3 -- A motor, 4 -- A sensor, 5

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 TECHNICAL FIELD
 

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## [Field of the Invention]

The gate and the wing gate of an automatic closing motion type which were installed in the automatic door with which this invention was installed in that of the entrance of a building or the room, and the entrance of a site, In the automatic closing motion door which control is performed using a computer, drives other shutters, apertures, etc. of an automatic closing motion type by a motor etc., and is opened and closed automatically Various kinds of information on an automatic door is made acquirable from a remote place using communication lines, such as the telephone line, and it is the sake of failure or a check of a failure. It is related with the management equipment of the automatic closing motion door which can perform various kinds of setup and operating commands from a remote place.

[0002]

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PRIOR ART

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[Description of the Prior Art]

the former -- check of an automatic closing motion door, maintenance, etc. -- being periodical (every [ for example, ] three months) -- the engineer was dispatched to the installation site with the report from a customer each time at the times, such as failure, and they had gone.

[0003]

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EFFECT OF THE INVENTION

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[Effect of the Invention]

As mentioned above, since this invention transmits the situation of an automatic closing motion door to a management pin center, large using a communication line, it becomes possible [ grasping decision whether check and maintenance are required, a failure, and extent of failure, even if it does not dispatch an engineer to the installation site of an automatic closing motion door ], and has the effectiveness that dispatch of an engineer in an installation site is reducible. Moreover, it has the effectiveness that restoration and exchange of software can be performed through a communication line also damage on the software of the door controller 6, and in the case of a bug, without dispatching an engineer to an installation site. Furthermore, before dispatch, even if dispatch of an engineer is repair of required failure, since things can be carried out, the need for which a locating fault, a failure situation, etc. are narrowed down to some extent of bringing an unnecessary repair part and an unnecessary tool to an installation site decreases, and the number reduction of inventories of repair parts can also be carried out.

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 TECHNICAL PROBLEM
 

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[Problem(s) to be Solved by the Invention]

If checked in the installation site and have grasped the situation, when it is check and maintenance conventionally, the necessity of maintenance was judged, the situation of failure needs to be grasped in an installation site when it is failure, and an engineer was not dispatched to an installation site even when it was any, there was a trouble that nothing started.

For example, there are few counts of closing motion, and also in a situation which does not dare have the need for check and maintenance, in order to check it, an engineer must be dispatched to an installation site. Moreover, for example, if it directs by telephone etc., even if failure will be the trifling failure which cannot be called and it will be a case so that an amateur can also remove, in order to grasp the situation of a failure, an engineer must be dispatched to an installation site.

[0004]

Furthermore, since a failure situation must be grasped in an installation site even if it is the case of the failure to which an engineer has to fix, the tool and components corresponding to all failure situations must be brought. Depending on the case, repair is impossible with components on hand, and repair may not be completed by one dispatch.

Furthermore, even when it turned out beforehand that it is failure resulting from damage, a bug, etc. of the control program of a computer, and is the failure which will be restored if software is restored or replaced, there was a trouble that an engineer had to be dispatched to an installation site.

[0005]

Since an engineer must be dispatched even if it is a case, although it is not necessary to be dispatch, if such a situation of an automatic closing motion door is grasped beforehand The number of inventories of a repair part will increase so much, and always bringing components required for it, since it corresponds to all failures with about [ that so excessive dispatch costs etc. are needed ] and possibility had the trouble of pushing up the cost of maintenance and a management service.

[0006]

This invention aims at decreasing unnecessary dispatch of an engineer in the installation site of an automatic closing motion door by grasping the condition and failure of an automatic door, and failure through a communication line.

[0007]

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## MEANS

## [Means for Solving the Problem]

In the automatic closing motion door which performs closing motion control and various kinds of setup by the door controller which was made in order that this invention might solve the above technical problems, and used the computer Said door controller is connected to the computer of the management pin center, large of a remote place through a communication line. While making various kinds of information on an automatic closing motion door into ready-for-sending ability to a management pin center, large and enabling various kinds of setup and control of an automatic closing motion door by remote operation from a management pin center, large, the control program of a door controller is made rewritable.

[0008]

## [Embodiment of the Invention]

The 1st example of the management equipment of the automatic closing motion door using the communication line by this invention is explained based on drawing 1.

1 is an automatic door and this automatic door 1 serves as the body 2 of an automatic door which consists of a door (not shown), a motor 3 for a drive, various sensors 4, an electric lock 5, etc. from the door controller 6 by the computer. The door controller 6 is connected to the communication controller 8 possessing memory and a modem function through RS-232C interface 7. The connector which connects to this CCE 8 the handy terminal 9 which performs a setup and actuation of the various kinds which control panels (not shown) with which a customer usually sometimes operates an automatic door 1, such as turning on and off of a power source and a switch of an electric lock, are prepared, and an engineer mainly mentions later in the installation site of an automatic door 1 is prepared. Although a handy terminal 9 may manufacture the thing of dedication, you may make it use commercial PAD (Personal Digital Assistants). Moreover, the wired system which used the connector as mentioned above may be used for the communication link between CCE 8 and a handy terminal 9, the radio system which used FM electric wave etc. may be used for it, and the communication link through a cellular phone is sufficient as it. Although illustration is not carried out, the floodlighting sensor which detects the existence of people and a body in the neutral zone of approach sensors, such as an abnormality sensor by the load sensor to the door for approach sensors, such as a body, and a catch return, the position sensor of a door, the rotation position sensor of a motor 3, the overcurrent of a motor 3, etc., a touch sensor at the tip of a door, and said body, is contained in said various sensors 4.

[0009]

On the other hand, 11 is the management pin center, large installed in the remote place, the computers 12 and 12 which receive and analyze the data from the automatic door 1 installed in the site are installed in the management pin center, large 11, and the printer 13 for data printing is connected to the computer 12. The computer 12 is connected to the communication controller 16 through LAN14 and the RS232C server 15.

The communication controller 8 by the side of said automatic door 1 and the communication controller 16 by the side of the management pin center, large 11 are connected through the communication lines 17,

such as the general telephone line and a dedicated line.

[0010]

In the above configurations, said door controller 6 is memorized in the memory in which the following door information on the body 2 of an automatic door acquired with the fixed time interval was prepared inside. There is the following information among the door information.

**\*\*1** Hysteresis information about actuation of doors, such as a count of closing motion of a door, a count of a catch return, and a door stroke.

**\*\*2** Setting information about the sensibility of the closing motion rate of a door, catch return sensibility, the selfish direction of door closing motion, and each sensor, sensing area, a special specification, etc.

**\*\*3** Current information about the location of a current door, operating state (under a switching action and a halt), a locking condition, etc.

**\*\*4** Error information, such as a count of generating according to category of error, and a door location at the time of error generating.

[0011]

Although various kinds of information memorized by the door controller 6 is transmitted to a communication controller 8 timely, the information is immediately transmitted to a communication controller 8 in emergency, such as door failure.

Moreover, the door controller 6 changes a setup of a door or a sensor, or controls the body 2 of an automatic door by the setting command from a communication controller 8 according to operating commands, such as open [ of a door ], close, a halt, locking, and unlocking.

[0012]

Said communication controller 8 accumulates various kinds of information transmitted from the door controller 6 in memory with acquisition time, and transmits the accumulated information to the management pin center, large 11 or a handy terminal 9 according to the demand from the management pin center, large 11 or a handy terminal 9. Moreover, according to the demand from the management pin center, large 11 or a handy terminal 9, CCE 8 receives transmission for the current information on the body 2 of an automatic door from the door controller 6, and transmits the current information to the management pin center, large 11 or a handy terminal 9. The information transmitted to emergency, such as door failure, from the door controller 6 is immediately transmitted to the management pin center, large 11 or a handy terminal 9. Moreover, said setting modification command and operating command which have been transmitted from the management pin center, large 11 or the handy terminal 9 are transmitted to the door controller 6.

[0013]

Said handy terminal acquires door information via a communication controller 8, and it displays it while it memorizes it. Moreover, it transmits to the door controller 6 via a communication controller 8 by considering the setting information on a door and the setting information on a sensor that it was inputted from the input panel as a setting modification command. Furthermore, operating commands, such as open [ of the door inputted from the input panel ], close, and a halt, are transmitted to the door controller 6 via a communication controller 8.

[0014]

Periodically or irregularly, from a communication controller 8, it acquires various kinds of information on an automatic door 1, and the computer 12 of said management pin center, large 11 checks the situation of a door of operation, takes into consideration the hysteresis of said check, maintenance, or failure correction, and judges the necessity of check and maintenance while it memorizes hysteresis, such as check of the automatic door 1 installed in the site, maintenance, and failure correction. The necessity of this check and maintenance is judged by the count of closing motion of the hysteresis of the check till then and maintenance, and a door etc. Moreover, if needed, a computer 12 can transmit the operating command of open [ of a door ], close, a halt, locking, and unlocking to a communication controller 8 through a communication line, can operate the body 2 of an automatic door by remote control, can acquire the positional information of a working door immediately, and can express the

situation of a door of operation as animation on a display. In emergency, such as door failure, the information transmitted from the door controller 6 is received, customer information, door information, and the required information on other are displayed on a display, and information required in order to dispatch the engineer to an installation site quickly is printed by the printer.

[0015]

Below, a concrete example is given and explained. First, fixed transmission of the data of an automatic door is explained.

Various kinds of data of the door controller 6 are remembered to have mentioned above by CCE 8. These data are transmitted to a computer 12 by demand periodical (every [ for example, ] month) from the computer 12 of the management pin center, large 11 from a communication controller 8. A computer 12 judges [ error information, such as a count of generating according to the hysteresis information about actuation of doors, such as a count of closing motion of a door, a count of a catch return, and a door stroke, and category of error, and a door location at the time of error generating, and ] further whether it is necessary to be check and maintenance with reference to the hysteresis information on the check till then and maintenance, and displays those information on a display about a thing with the need.

And an engineer is dispatched to an installation site with reference to such information in consideration of the components for which exchange etc. may be needed.

[0016]

Below, the case where failure occurs on the body 2 of an automatic door is explained.

If failure occurs on the body 2 of an automatic door, the door controller 6 will judge whether they are abnormalities for it from the detection value of the various sensors 4, such information will be transmitted to a communication controller 8, and a communication controller 8 will transmit information to the computer 12 of the management pin center, large 11 as failure information with the information accumulated. The computer 12 which received such information is immediately displayed on a display as failure information. An engineer gets cooperation (for example, approach prohibition measure to the automatic door concerned etc.) of a customer, transmits an operating command to the body 2 of an automatic door, and tries remote operation while he judges the situation of failure and notifies the customer of an installation site if needed based on the information displayed on the display of a computer 12.

[0017]

The operating command inputted from the computer 12 is sent to the RS232C server 15 through LAN14, and remote operation is further transmitted to the communication controller 8 by the side of an automatic door 1 through a communication line 17 from a communication controller 16. And a communication controller 8 transmits an operating command to the door controller 6 through RS-232C interface 7, and the door controller 6 controls the body 2 of an automatic door according to an operating command.

From the door controller 6, the current information about the location and operating state of a door current in the result of remote operation is transmitted to a computer 12 through the RS232c interface 7, CCE 8, a communication line 17, CCE 16, the RS232C server 15, and LAN, and a computer 12 analyzes such current information, and animates and displays a motion of a door on a display.

[0018]

Consequently, when drive networks, such as a motor 3, are not concerned possible [ actuation ] normally, but a big load is applied to a door and a door does not operate, it suspects that something is caught in a door and it has been a failure, and a customer is asked about whether such a failure has arisen. When a customer is able to discover a failure and is able to remove a failure by his hand, an automatic door 1 is restored and it becomes unnecessary to dispatch an engineer to an installation site. Moreover, in a customer, even if cannot discover a failure or it can discover it, when it cannot remove, an engineer is dispatched to an installation site. Also when [ which is failure to be fixed as a result of analyzing the transmitted information ] judged, an engineer is dispatched to an installation site. The tool of the dedication which may be needed for the components for which it may break down and exchange

may be needed, or repair etc. is brought, and it dispatches to an installation site.

[0019]

The above example shows an example in case one set of an automatic door is installed in an installation site. When two or more sets of automatic doors are installed in the site, as shown in drawing 2, the door controller 6 of two or more automatic doors is connected to one set of a communication controller 8. In this case, a transceiver 18 is formed between CCE 8 and the door controller 6, and a handy terminal 8 is connected to this transceiver 18. And the ID code for discernment is assigned to this transceiver 18, and the door controller 6 is identified with this ID code.

It is the same as that of other configurations, therefore the example of drawing 1.

[0020]

Although memory is prepared in the communication controller 8 by the side of an automatic door and the information on an automatic door was memorized in the above example, this invention is not restricted to this, prepares and memorizes memory in the door controller 6, and it may be made to carry out direct continuation to the handy terminal 9 door controller 6.

Moreover, although the class of communication line was not specified, it may be made to connect the management pin center, large 11 with an automatic door 1 using a general analog telephone line and a general digital channel, and the circuit of dedication is installed and you may make it connect in the above example. Moreover, you may make it connect via the Internet. Furthermore, the communication line of a cable is sufficient and the communication line of wireless is sufficient.

[0021]

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[Translation done.]

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is the conceptual diagram in which showing the 1st example of the management equipment of the automatic closing motion door using the communication line by this invention, and showing an example in case there is a set of an automatic door in an installation site.

[Drawing 2] It is the conceptual diagram in which showing the 2nd example of the management equipment of the automatic closing motion door using the communication line by this invention, and showing an example in case two or more automatic doors are in an installation site.

[Description of Notations]

1 [ -- An electric lock, 6 / -- A door controller, 7 / -- An RS-232C interface, 8 / -- The CCE, 9 / -- A handy terminal, 11 / -- A management pin center, large, 12 / -- A computer, 13 / -- A printer, 14 / -- LAN, 15 / -- A RS232C server, 16 / -- The CCE, 17 communication lines, 18 / -- Transceiver. ] -- An automatic door, the body of 2 -- automatic door, 3 -- A motor, 4 -- A sensor, 5

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[Translation done.]



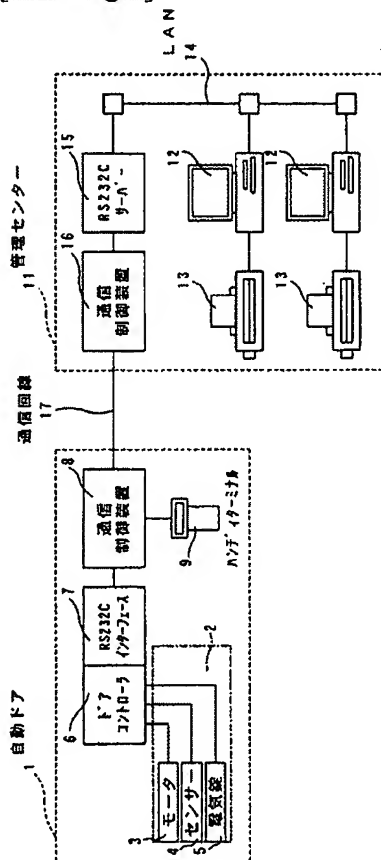
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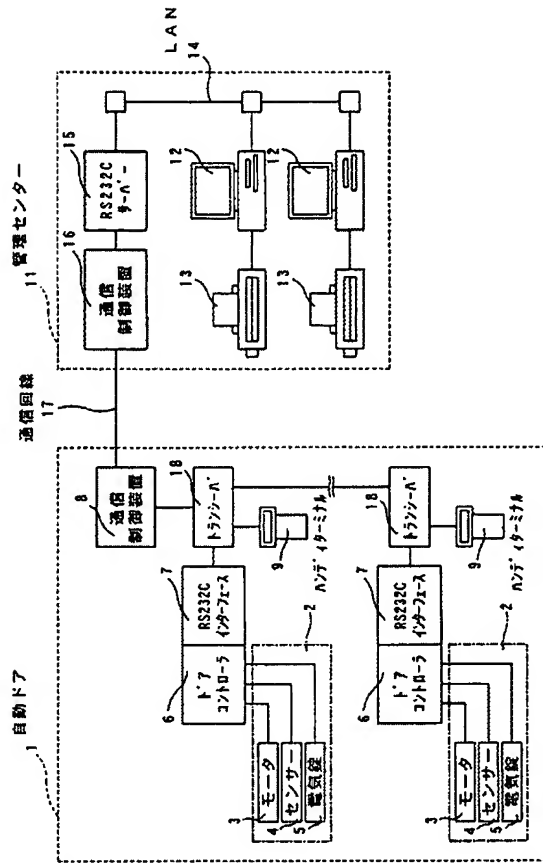
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## DRAWINGS

[Drawing 1]



[Drawing 2]



[Translation done.]

h

c

g

cg

b

eb

cg

e

e